

PATENT
SZS&Z Ref. No. : IO031006PUS / dh
Atty. Dkt. No. INFN/SZ0029

REMARKS

This is intended as a full and complete response to the Office Action dated January 17, 2006, having a shortened statutory period for response set to expire on April 17, 2006. Please reconsider the claims pending in the application for reasons discussed below.

In the specification, paragraph [0026] has been amended to correct minor editorial problems.

Claims 1-42 are pending in the application. Claims 1-40 and 42 remain pending following entry of this response. Claims 10 and 29 have been amended. Claim 41 has been canceled without prejudice. Applicants submit that the amendments do not introduce new matter.

Claim Objections

Claim 41 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have canceled claim 41 in response to the Examiner's objection.

Claim Rejections - 35 USC § 102

Claims 1-42 are rejected under 35 U.S.C. 102(b) as being anticipated by *Park* (US Patent Number 6,147,926).

Applicant respectfully traverses this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

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In the Office Action dated 1/17/2006 (hereinafter Office Action) the Examiner attempts to reject claims 1, 10, 16, 18, 23, 26, 27, 29, and 39 by solely addressing the wording of Claim 39. Respectfully, this approach taken by the Examiner is insufficient to address the limitations of other claims submitted by the Applicants as indicated below.

Claim 1

With respect to Claim 1, the Examiner does not address at least one claim limitation in the Office Action. For example, with respect to Claim 1, the Examiner does not address the Claim limitation of "transmitting, via a first signal path, a strobe signal to a receiving circuit indicating the validity of the first data on the data bus." Nonetheless, with respect to Claim 1 the cited reference, *Park*, does not disclose the claim limitation of "transmitting, via a first signal path, a strobe signal to a receiving circuit indicating the validity of the first data on the data bus."

Park is directed to a technique for controlling the latency of DDR SDRAM. (*Park*, Column: 6, Lines: 21-23). In *Park*, a strobe signal is transmitted from a database controlling unit. (*Park*, Column: 6, Lines: 50). However, the database controlling unit is not "transmitting...a strobe signal to a receiving circuit indicating the validity of the first data on the data bus." Rather, the database controlling unit "provides an FRDB strobe signal when an SRDB is precharged upon reception of an SRDB data bit by bit." (*Park*, Column: 6, Lines: 51-53). Thus, the database controller unit in *Park* is not transmitting a strobe signal to indicate the validity of data on a bus, rather the database controller unit in *Park* is transmitting a strobe signal to indicate that a SRDB is precharged. Therefore, *Park* does not teach sending a strobe signal to indicate validity of data, as disclosed in Claim 1.

Thus, *Park* fails to disclose at least the Claim 1 limitation of "transmitting, via a first signal path, a strobe signal to a receiving circuit indicating the validity of the first data on the data bus." Therefore, Claim 1 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

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Claim 10

With respect to Claim 10, the Examiner does not address at least one claim limitation. For example, with respect to Claim 10, the Examiner does not address the Claim limitation of "receiving, by the controller, the strobe signal a period of time after issuing the strobe signal." Nonetheless, with respect to claim 10, *Park* does not disclose at least the claim limitation of "receiving, by the controller, the strobe signal a period of time after issuing the strobe signal."

In *Park*, a strobe signal is transmitted from a database controlling unit. (*Park*, Column: 6, Lines: 50). After the strobe signal is transmitted by the database controlling unit, it is received by the FRDB latch. (*Park*, Column: 6, Lines: 53-55). After the FRDB latch receives the strobe signal, the FRDB latch provides data to the database controlling unit in response to the strobe signal. (*Park* Column: 6, Lines: 47-50) The database controller unit in *Park* does not receive the strobe signal a period of time after issuing the strobe signal. Rather, in *Park* the database controlling unit receives data in response to the strobe signal.

Thus, *Park* fails to disclose at least the Claim 10 limitation of "receiving, by the controller, the strobe signal a period of time after issuing the strobe signal." Therefore, Claim 10 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Claim 16

With respect to Claim 16, the Examiner does not address at least one claim limitation. For example, with respect to Claim 16, the Examiner does not address the Claim limitation of "...a driver controller: driving first data on a data bus; transmitting a data strobe signal to a receiver via a forward signal path; receiving the data strobe signal via a return signal path." Nonetheless, with respect to claim 16, *Park* does not disclose at least the claim limitation of "...a driver controller: driving first data on a data bus; transmitting a data strobe signal to a receiver via a forward signal path; receiving the data strobe signal via a return signal path."

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In *Park*, no such driver controller is disclosed. In *Park* a database controlling unit is disclosed which does provide a strobe signal. (*Park* Column: 6, Line: 50). However, nowhere in *Park* is it disclosed that the database controlling unit performs the action of "driving...data on a data bus." In *Park* the function of driving data on a data bus is performed by a main sense amplifier, a FRDB latch, a SRDB latch, an SDO latch and an output driver (See Figure 2); however, none of those devices provide a strobe signal. Thus, no device in *Park* performs both functions of driving data on a bus and transmitting a data strobe signal. All of the devices in *Park* only do one function or the other, either driving data on a bus or delivering a strobe signal. Therefore, nowhere in *Park* is "a driver controller" described as disclosed in claim 16.

Thus, *Park* fails to disclose at least the Claim 16 limitation of "...a driver controller: driving first data on a data bus; transmitting a data strobe signal to a receiver via a forward signal path; receiving the data strobe signal via a return signal path..." Therefore, Claim 16 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Claim 18

With respect to Claim 18, the Examiner does not address at least one claim limitation. For example, with respect to Claim 18, the Examiner does not address the at least the Claim limitations of "issuing a strobe signal to a receiving circuit via a forward signal path to indicate the presence of the first data on the data bus" and "receiving the strobe signal via a return signal path, wherein receipt of the strobe signal indicates an assumed arrival of the strobe signal at the receiving circuit via the forward signal path." Nonetheless, with respect to claim 18, *Park* does not disclose at least the claim limitations of "issuing a strobe signal to a receiving circuit via a forward signal path to indicate the presence of the first data on the data bus" and "receiving the strobe signal via a return signal path."

In *Park*, the limitation of "issuing a strobe signal to a receiving circuit via a forward signal path to indicate the presence of the first data on the data bus" is not

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disclosed. In *Park* a database controlling unit is disclosed which does provide a strobe signal to an FRDB latch. (*Park* Column: 6, Line: 50). In *Park* the strobe signal is provided to the FRDB latch "when an SRDB is precharged upon reception of an SRDB data bit by bit." (*Park* Column 6: Lines: 51-53). In *Park* the strobe signal is not issued "to indicate the presence of the first data on the data bus," rather the strobe is provided to indicate when the SRDB is precharged. Thus, *Park* fails to disclose at least one claim limitation of claim 18.

Furthermore, *Park* does not teach "receiving the strobe signal via a return signal path." In *Park*, in response to the strobe signal, the FRDB latch "provides data of FRDB to the database controlling unit and the SRDB latch/multiplexer." (*Park*, Column: 6, Lines: 47-49). Thus, in response to the strobe signal the FRDB latch provides data. Nowhere in *Park* is the strobe signal received via a return signal path. In *Park* the strobe signal is not returned, rather in *Park* data is returned to the database controlling unit. Therefore, nowhere in *Park* is "receiving the strobe signal via a return signal path" described as disclosed in claim 18.

Thus, *Park* fails to disclose at least the Claim 18 limitations of "issuing a strobe signal to a receiving circuit via a forward signal path to indicate the presence of the first data on the data bus" and "receiving the strobe signal via a return signal path." Therefore, Claim 18 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Claim 27

With respect to Claim 27, *Park* does not disclose at least the claim limitation of "a round-trip path comprising a return path for the strobing clock signal back to the controller."

The Examiner states in the Office Action: "a first round trip path comprising a first return path for the first strobe clock signal back to the first controller (column 6, 42-60, controller round-trip path)." (Office Action, Page 3, Lines 19-20). Although this is not the same claim language as the Claim 27 language, it does contain the phrase "round trip

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path" and is the closest argument the examiner has to this claim language. However, the language from *Park* that the Examiner cites does not disclose the Claim 27 limitation of "a round-trip path comprising a return path for the strobing clock signal back to the controller."

In *Park*, a strobe signal is sent from a database controlling unit to an FRDB latch. (*Park*, Column: 6, Lines: 47-50) In response to the strobe signal sent by the database controlling unit, the FRDB latch "provides data of FRDB to the database controlling unit and the SRDB latch/multiplexer." (*Park*, Column: 6, Lines: 47-49). Thus, in response to the strobe signal the FRDB latch provides data. Nowhere in *Park* is "a return path for the strobing clock signal back to the controller" provided. Rather, in *Park*, a data path is provided for data sent from the FRDB to the database controlling unit in response to the strobe signal. In *Park*, data is returned to the database controlling unit, the strobe signal is not returned. Even if it were assumed that this data was some type of strobe signal being returned to the database controlling unit from the FRDB latch, this signal is not the strobe signal initially sent from the database controlling unit.

In the material cited by the Examiner, a second strobe signal, the SRDB strobe, is also disclosed in *Park*. This signal is sent from the database controlling unit to the SRDB latch. (*Park* Figure 2, Column 6, Lines 59-60). In response to the SRDB strobe signal the SRDB latch forwards data to the SDO latch. (*Park*, Figure 2; Column: 6, Lines: 56-59). Nowhere in *Park* is it disclosed that the SRDB strobe signal is returned to the database controlling unit. In fact, nothing is sent back to the database controlling unit in response to the SRDB strobe signal. There is no return path for the SRDB strobe signal to the database controlling unit. Therefore, nowhere in *Park* is "a round-trip path comprising a return path for the strobing clock signal back to the controller" described as disclosed in claim 27.

Thus, *Park* fails to disclose at least the Claim 27 limitation of "a round-trip path comprising a return path for the strobing clock signal back to the controller." Therefore, Claim 27 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

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Claim 29

With respect to Claim 29, the Examiner does not address at least one claim limitation. For example, with respect to Claim 29, the Examiner does not address at least the Claim limitation of "a return clock signal line coupled at an output end to the controller and configured to propagate a return clock signal signaling the controller to enable the driver to drive the second data; wherein the return clock signal is timed off of the strobe clock signal." Furthermore, with respect to claim 18, *Park* does not disclose this claim element.

In *Park*, a strobe signal is sent from a database controlling unit to an FRDB latch. (*Park*, Column: 6, Lines: 47-50) In response to the strobe signal sent by the database controlling unit, the FRDB latch "provides data of FRDB to the database controlling unit and the SRDB latch/multiplexer." (*Park*, Column: 6, Lines: 47-49). Thus, in response to the strobe signal the FRDB latch provides data. Nowhere in *Park* is "a return clock signal line coupled at an output end to the controller and configured to propagate a return clock signal" provided. Rather, in *Park*, data is provided to the database controlling unit in response to the strobe signal.

Furthermore, *Park* does not disclose the limitation of "a return clock signal signaling the controller to enable the driver to drive the second data." In *Park* a database controlling unit is disclosed which does provide a strobe signal to an FRDB latch. (*Park* Column: 6, Line: 50). In *Park* the strobe signal is provided to the FRDB latch "when an SRDB is precharged upon reception of an SRDB data bit by bit." (*Park* Column 6: Lines: 51-53). In *Park* the database controller unit does not enable the driver to drive second data upon the reception of a return clock signal, rather, the database controlling unit enables the driver when the SRDB is precharged. Therefore, *Park* does not disclose "a return clock signal signaling the controller to enable the driver to drive the second data."

Thus, *Park* fails to disclose at least the Claim 29 limitation of "a return clock signal line coupled at an output end to the controller and configured to propagate a

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return clock signal signaling the controller to enable the driver to drive the second data; wherein the return clock signal is timed off of the strobe clock signal." Therefore, Claim 29 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Claim 32

With respect to Claim 32, the Examiner does not address at least one claim limitation. For example, with respect to Claim 32, the Examiner does not address the at least the Claim limitation of "a return clock signal line coupled to the return clock signal input; wherein the strobe clock signal line defines an initial portion of a round-trip path and the return clock signal line defines a terminal portion of the round-trip path." Nonetheless, with respect to claim 32, Park does not disclose this claim element.

In *Park*, a strobe signal is transmitted from a database controlling unit. (*Park*, Column: 6, Line: 50). After the strobe signal is transmitted by the database controlling unit, it is received by the FRDB latch. (*Park*, Column: 6, Lines: 53-55). After the FRDB latch receives the strobe signal, the FRDB latch provides data to the database controlling unit in response to the strobe signal. (*Park* Column: 6, Lines: 47-50) The database controller unit in *Park* does not receive a return clock signal. Rather, in *Park* the database controlling unit receives data in response to the strobe signal.

Thus, *Park* fails to disclose at least the Claim 32 limitation of "a return clock signal line coupled to the return clock signal input; wherein the strobe clock signal line defines an initial portion of a round-trip path and the return clock signal line defines a terminal portion of the round-trip path." Therefore, Claim 32 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Claim 39

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With respect to Claim 39, *Park* does not disclose at least one claim limitation. *Park* does not disclose "a second driver circuit coupled to the bus and configured to propagate a third and a fourth data in a second direction along the bus."

The Examiner argues in the Office Action that the "SRDB, column 4, lines 43-44" is the second driver circuit. (Office Action, Page 3, Line: 7). Applicants note that SRDB is actually a bus, the Second Read Data Bus (SRDB); however, Applicants note that *Park* discloses a latch, the SRDB latch, that provides data which may be interpreted as a driver circuit. However, neither the SRDB latch nor the SRDB can be "a second driver circuit" as disclosed in Claim 39. The claim limitation in Claim 39 states that the second driver circuit is "configured to propagate a third and a fourth data in a second direction along the bus." In *Park*, data is being sent in one direction, from the memory cell array (Figure 2, Element number 31) to the output driver (Figure 2, element 44). This is apparent in *Park* by the direction of the arrows along the data path. (*Park*, Figure 2, element 32). In *Park*, no driver propagates data in a second direction along the bus, rather in *Park* all of the latches or drivers drive data in only one direction (i.e., from the memory array to the output driver).

Thus, *Park* fails to disclose at least the Claim 39 limitation of "a second driver circuit coupled to the bus and configured to propagate a third and a fourth data in a second direction along the bus." Therefore, Claim 39 and its dependents are believed to be in a condition for allowance, and allowance of the claims is respectfully requested.

Information Disclosure Statement

Applicants note that the Examiner has not indicated consideration of the second sheet of Form 1449 submitted on May 4, 2005. Applicants have attached to this response a copy of this formerly submitted sheet and respectfully request consideration of the same.

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Conclusion

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully requests that the claims be allowed.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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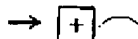
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 2

of 2

Application Number	10/699,473
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First Named Inventor	Jonghee Han
Group Art Unit	2186
Examiner Name	unknown
Attorney Docket Number	INFN/SZ0029
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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	C1	PCT International Search Report dated March 4, 2005.	
	C2		
	C3		
	C4		
	C5		
	C6		
	C7		
	C8		
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	C10		

Examiner

Date Considered

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